

**Radiology Compliance Branch**  
RADIATION PROTECTION SECTION



Division of Health Service Regulation • N.C. Department of Health and Human Services

**ANALYTICAL INSPECTION CHECKLIST**  
**X-ray diffraction (XRD), x-ray fluorescence (XRF), spectroscopy,**  
**particle size analysis and components utilizing x-rays to determine the elemental composition**  
**or to examine the microstructure of materials**

North Carolina Regulations For Protection Against Radiation [10A NCAC 15](#) rule references shown in brackets below.

**General Documents:**

- ☐ Waivers on file (if applicable) [.0108(a)]
- ☐ Records of Receipt / Transfer [.0115]
- ☐ Current Notice of Registration [.0209] [.1002(a)(2)]
- ☐ Current State Regulations [.1002(a)(1)]
- ☐ Notice to Employees (posted in restricted area) [.1002(c)]

**Operating Requirements / Radiation Protection Program**

- ☐ Operating requirements [.0805]; [.1002(a)(3)]
- ☐ Current copy of the radiation protection program [.1603(a)]

**Open Beam Indicators**

- ☐ **X-ray Tube Status:** (ON-OFF) Located near the radiation source housing [.0803(d)(1)]  
OR
- ☐ **Shutter Status:** (OPEN-CLOSED) Located near each port on the radiation source housing [.0803(d)(2)]  
OR
- ☐ **Beam Status:** (ON-OFF) Located near each port on the radiation source housing [.0803(d)(2)]

**Labels**

- ☐ "CAUTION HIGH INTENSITY X-RAY BEAM" near exit port to identify location of beam [.0803(j)(1)]
- ☐ "CAUTION - RADIATION - THIS EQUIPMENT PRODUCES RADIATION WHEN ENERGIZED"  
(located near any switch that energizes an x-ray tube) [.0803(j)(2)]

**Warning Lights [.0803(k)(l)]**

- ☐ Labeled: "X-Ray On"
- ☐ Located: Near any switch, that energizes tube **or** conspicuously located near source / beam(s)
- ☐ Visible: From all instrument access areas
- ☐ Activates: When energized

**Area Requirements [.0804(c)]**

- ☐ "CAUTION- X-RAY EQUIPMENT" posted at each area of use or room

**Unit Security [.1622]**

- ☐ Security of equipment

**Records**

- ☐ Training documentation of person responsible for radiation protection [.0203(b)(3)]
- ☐ Survey reports: [.0804(b)]; [.1613]; [.1637]
  - Within 30 days of initial operation
  - Prior to use following any change in initial arrangement
  - Prior to use following maintenance
- ☐ Annual testing for proper operation of safety devices (interlocks/shutters/warning lights) [.0805] (*eff.10/1/15*)
- ☐ Operating and emergency procedures training documentation records [.0806 (a)(2)]
- ☐ Annual radiation protection program review by registrant [.1603(c)]; [.1636]

**Personnel Requirements**

- ☐ Ring or Wrist personnel monitoring equipment [.0806(b)] (**OPEN BEAM REQUIREMENT**)
- ☐ Personnel monitoring and exposure records [.1614]; [.1640]